



Using the Parallax RFID Reader with an Arduino

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TOOLS:

- [Alligator test/jumper cable set \(1\)](#)



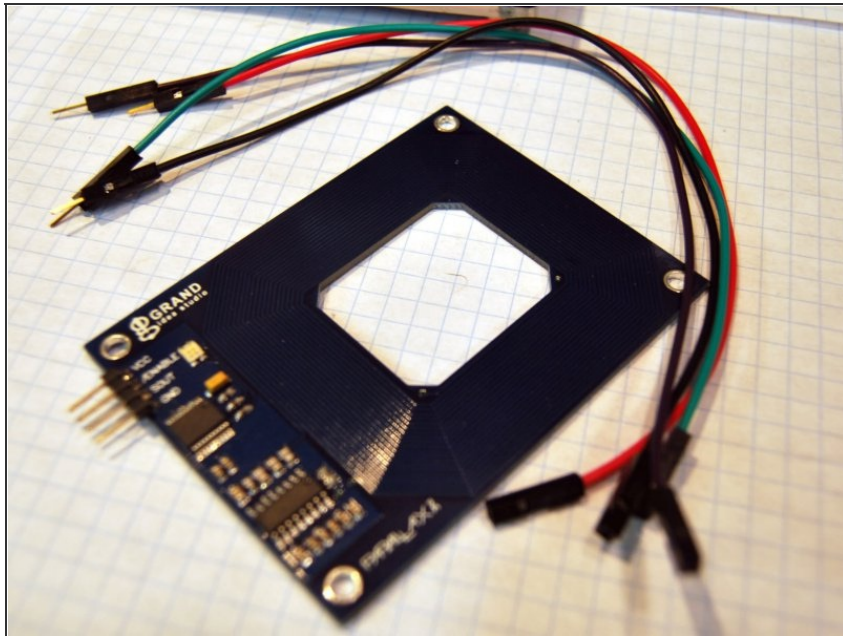
PARTS:

- [Parallax RFID Reader \(1\)](#)
- [Arduino microcontroller \(1\)](#)

SUMMARY

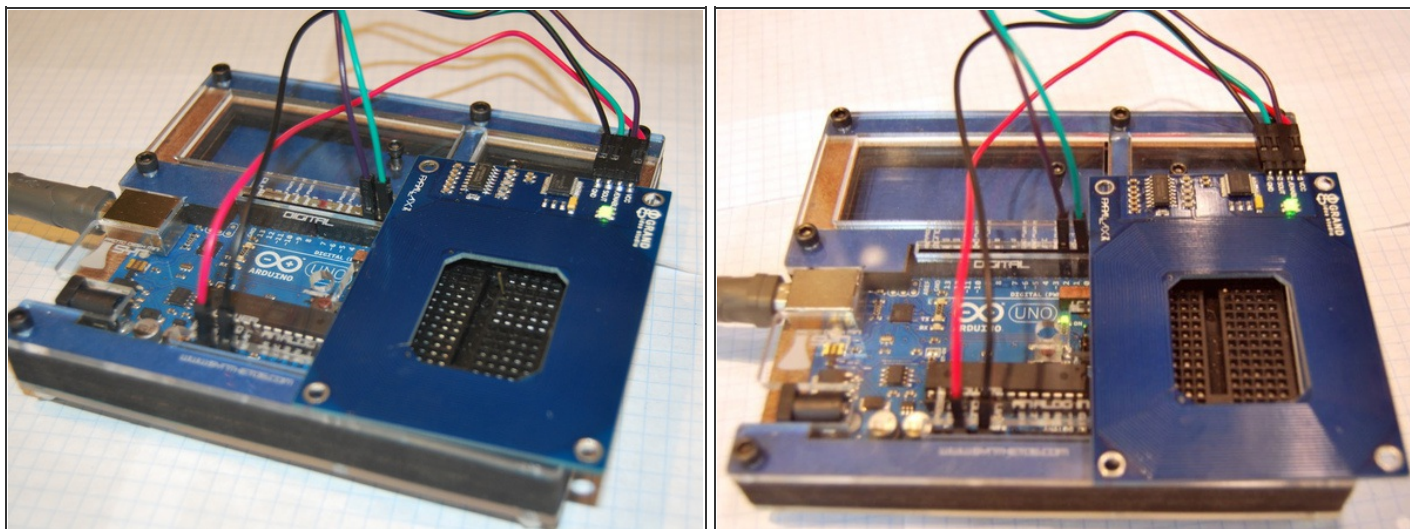
If you've ever wanted the ability to use some form of hardware-based authentication in your projects then this is the board to do it with. The Parallax RFID (Radio Frequency Identification) reader is super easy to configure. It only takes four wires! It uses serial protocol to transfer information from RFID cards to the Arduino. This project is a quick introduction to using this RFID reader with the Arduino system.

Step 1 — Using the Parallax RFID Reader with an Arduino



- This step is simple. Just gather up your needed components. You will need:
 - Four jumper wires
 - Parallax RFID reader
 - Arduino development board
 - Optional breadboard
- That's it! Moving on....

Step 2



- Wire the RFID reader to the Arduino. Follow the pin mapping text below.
 - Arduino Rx = RFID S_{OUT}
 - Arduino D2 = RFID Enable
 - Arduino GND = RFID GND
 - Arduino 5v = RFID V_{CC}
- D2 means digital pin number 2.



Step 3

```

Arduino_Parallax_RFID_Reader | Arduino 0022
Arduino_Parallax_RFID_Reader
/**
 * author Benjamin Eckel
 * date 10-17-2009
 *
 * Minor edits by Riley Porter
 * 2-27-2011
 */
#define RFID_ENABLE 2 //to RFID ENABLE
#define CODE_LEN 10 //max length of RFID tag
#define VALIDATE_TAG 1 //should we validate tag?
#define VALIDATE_LENGTH 200 //maximum reads b/w tag read and validate
#define ITERATION_LENGTH 2000 //time, in ms, given to the user to move hand away
#define START_BYTE 0x0a
#define STOP_BYTE 0x0d




char tag[CODE_LEN];

void setup() {
  Serial.begin(2400);
  pinMode(RFID_ENABLE,OUTPUT);
}

void loop() { //Start our main Arduino Loop
  enableRFID(); //Enable the RFID card
  getRFIDTag(); //Reads the tag
  if(!isCodeValid()) { //Validates that the tag is good
    disableRFID(); //Puts the RFID reader in to low power mode
    sendCode(); //Sends the code read to the serial port
    delay(ITERATION_LENGTH); //Debounce?
  } else {
    disableRFID(); //Got a incomplete code..
    Serial.println("Got some noise");
  }
  Serial.flush();
  clearCode();
}

/**
 * Clears out the memory space for the tag to 0s.
 */
void clearCode() {
  for(int i=0; i<CODE_LEN; i++) {
    tag[i] = 0;
  }
}

```

- Toss some code onto the Arduino.
- There are MANY different versions of Arduino code  for this RFID reader. However, the best code I have seen to date was [written by Benjamin Eckel](#). I have posted his code on my github account for archival purposes. You can get it [here](#).
- Now that the RFID reader is talking to your Arduino, you are ready to hack the code up and create a really cool project! 
- The sendCode function is what one would hack in  order to use the RFID reader for something other than printing the tags to a terminal. To fully understand the code, you should read the datasheet in full. You can get it [here](#).

Step 4

- That's all there is to it. This is basically a stub and I encourage you to add your own experiences with using an RFID reader with an Arduino.
- Leave your questions and other thoughts using the Make: Projects notes feature.

Once you are able to connect to and read RFID tags, you are ready to integrate this into a larger project. Perhaps an RFID-enabled candy safe? Or an RFID garage door opener? There are many options. Good luck!

For Arduino news, features, tutorials, a buyer's guide, and more, visit the [Make: Arduino page](#).

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